

Calculus I for engineers

MATH 1210 - Fall 2021

Instructor: Dr. Serhii Myroshnychenko, **e-mail:** smyroshn@lakeheadu.ca

Schedule:

- ✓ Lectures: Monday, Wednesday 14:00 – 13:30 EST via Zoom.
- ✓ Labs: Monday 17:00 – 18:00 EST via Zoom.
- ✓ Office hours: Monday, Wednesday 15:30 – 16:30 EST and by appointment via Zoom.

Recommended textbooks:

- *Calculus*, by Ron Larson and Bruce Edwards.
- *Calculus: early transcendentals*, by James Stewart.

Important dates:

- Final date to register: Monday, September 20, 2021.
- Final date to withdraw: Friday, November 5, 2021.
- Midterm: Monday, October 18, 2021.
- Final: **TBD**.

Exams: There will be one midterm exam during the **lab hours**. The final exam will be scheduled by the registrar's office. The exams will be closed book with no calculators or other aids allowed.

Grade: Please note that **no** alternate grading scheme will be used in this course.

Written Homework	10%
Online Assignments (WeBWork)	20%
Midterm	30%
Final	30%
Quizzes	10%

Homework: Written HW is assigned **bi-weekly**. Online assignments are assigned **weekly**.

Lab Hour: No new material will be covered in the labs. The lab will reinforce concepts through examples, as well as provide students with the opportunity to ask questions about the content given in class or assignment problems. Though the lab is not mandatory, it is very beneficial to attend and **required to take a quiz**.

Course Policies:

1. Late assignments will be **accepted and reviewed, but not graded**. There will be **no** make-up exams. If you miss the midterm for a legitimate reason which you can document (e.g. doctor's note), the weight of the midterm will be *transferred* to the final exam. The documented proof of absence should be provided no later than 3 days after the is scheduled.

2. All electronic devices (phones etc.) are prohibited during the exams. In case when such a device is detected during the exam (**activated or not**), it would be treated as an **academic misconduct** situation.

Accommodations: Lakehead University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all their academic activities. If you think you may need accommodations, you are strongly encouraged to contact Student Accessibility Services (SAS) and register as soon as possible. For more information please visit:

<https://www.lakeheadu.ca/students/student-life/student-services/accessibility/>

Awards and scholarships for current/returning students:

<https://www.lakeheadu.ca/studentcentral/financing-budgeting/scholarships-for-current-returning>

Any questions? Feel free to reach out to the instructor by e-mail or “in-person” with any questions, concerns, comments you might have. Also, check-out the following useful page for several related student resources:

<https://www.lakeheadu.ca/students/student-life/student-conduct/resources>

Tentative schedule

Week	Topics
1	Functions and models, function composition. Inverse functions. Trigonometric functions. Exponential and logarithmic functions.
2	Odd and even functions, periodicity, transformations. Piecewise-defined functions: the absolute value function, Heaviside function.
3	The trigonometric and inverse trigonometric functions. Review of exponential and logarithmic functions. The hyperbolic functions.
4	Limits and continuity. Asymptotes.
5	Differentiation. Techniques of differentiation: implicit and logarithmic differentiation.
6	The Mean Value theorem. Newton’s method.
7	Curve sketching techniques. Optimization problems.
8	Related rate problems. L’Hôpital’s rule. Differentials & linearization.
9	Indefinite Integrals. The definite integrals and their properties.
10	The Fundamental Theorem of Calculus. The method of substitution (change of variables).
11	Integration by parts. Average values of functions. Areas between curves.
12	Volumes of solids of revolution. Work.